

# 2010-05-17 Monday Morning Summary

Monday, May 17, 2010

7:00 AM

## Stacking

- Friday day shift PBKICK front end restored to service
  - Kevin Martin rebuilt hard drive
- D:H1AL1
  - D:H1AL1 (Debuncher Horizontal Band 1 Low Level Amplifier) came into alarm. The device is still on but Amp Voltage Monitor bit is in fault. This device has been bypassed and is in the work order.
- D:POTMF - goes to zero
  - When goes to zero, all TWTs trip.
  - Setting PLC07S at AP30
  - Reading PLC10 at A30 Stub
  - Soln was set to 122 to 123
  - DVM
    - setting us up to run on Debuncher momentum filter #1 only for the weekend. Looking at the datalogger, there seems to be little if any cost in stacking.  
I have disabled the commands in the sequencer aggregate for tuning the second filter and removed the trombone and switch parameters from the D59 lists so they remain bypassed.
    - Alarm in dead TWT list
  - Dave Peterson
    - D:POTMF is reading back 0 ps and does not seem to be responding to commands. Dave Peterson took a laptop out to AP30 and queried the General Photonics MDL-002 controller over the serial port. A move request such as "\_abs\_123.456\$" should cause the controller to respond "OK" when the move is successful or "NO" if something is wrong. The unit says "NO" to most requests and occasionally just does not respond to a move request.
    - The delay line and controller are in the A30 Stub Room.
  - Tune notch filter aggregate had to be changed ( D:PO2T1 and D:PO2T12 in manual (digital status of \* M))
  - In the Debuncher momentum system we switch between a one turn delay notch and a two turn delay notch mid-cycle. We can run without one, but momentum cooling is less efficient.
    - Noticed beam has a wider momentum width, ARF1 has a larger suggested bucket size, stacking impacted by a small amount of maybe 3-4%.
    - We would like to access over the next couple of days.
- A:ISEP1V
  - Lots of cap band OV trips
  - Camac 119 card replaced
  - Bad 5V PS internal to the crate controller
  - On Sunday morning, **A:ISEP1V** started tripping again on Capacitor Overvoltage. The 5V power supply, internal to the Septum Power Supply Controller chassis, was replaced. Its output was at 4.7V, and had excessive ripple. The 5V power supplies in all of the Septum power supplies, should be replaced during the next long shutdown

Pasted from <<http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar10&action=view&page=last&frame=2&anchor=&hlite=&load=>>

  - Plotting problems Pbar Crate \$18, Slot #1 C190 (MADC #15)
    - Reset the MADC to do plots
    - Pbar FTP restore file #69
    - Would like controls experts to take a look.
- Stacking Performance:

- <Stack Rate> = 24.8mA/hr, 25.8mA/hr (without large stack)
- <Production> = 20.6 pbar/Mp
- <Beam on Target> = 8.14 Tp
- Largest Stack = 254mA

## Transfers

- Unstacked 1428E10 in 156 transfers over 50 sets with an average efficiency of 92.9%
  - Two inefficient transfers:
    - Transfer from 254mA was only 77% (would expect low 80%<sup>s</sup>). Some was emittances, some was beamline orbit.
    - Transfer after from 54mA was also low in efficiency at 91%. Beamline tune-up was done and back to more normal numbers
    - Overall efficiency taking the bad transfers out was 95.6%
- During the set of transfers to RR following the HEP shot, efficiency was low. This was due to the large stack size and high emittances. The VSA was in the wrong mode: stacking mode with no stacking events. Also, it appeared the automated cooling loops were putting too much power in the 2-4 and 4-8 systems. Ops attempted to circumvent the automated settings with mixed results. - [jck](#)  
 -- Sun May 16 13:01:52 comment by...jck -- The lack of stacking events kept the VSA from updating, which kept the frequency width from updating, which in turn messed up the cooling regulation.

## Studies

- Stacktail Phasing with 30e10 - looking for opportunistic non-stacking time
- Stacktail tank moving - parasitic
- Jim Morgan would like to change beamline C204 limits based on calculations using the model. He would also like to change V714 to allow a couple of the trims to run less hard.

## Access

- 2 hour access to fix D:POTMF in the A30 stub room
- Do measurements that will allow increasing the 4-8GHz momentum TWTs by 10 watts each.

## The Numbers

- Stacking
  - Pbars stacked: 1424.01 E10
  - Time stacking: 70.17 Hr
  - Average stacking rate: 20.29 E10/Hr
- Uptime
  - Number of pulses while in stacking mode: 92895
  - Number of pulses with beam: 88827
  - Fraction of up pulses was: 95.62%
- The uptime's effect on the stacking numbers
  - Corrected time stacking: 67.10 Hr
  - Possible average stacking rate: 21.22 E10/Hr
  - Could have stacked: 1489.22 E10/Hr
- Recycler Transfers
  - Pbars sent to the Recycler: 1401.28 E10

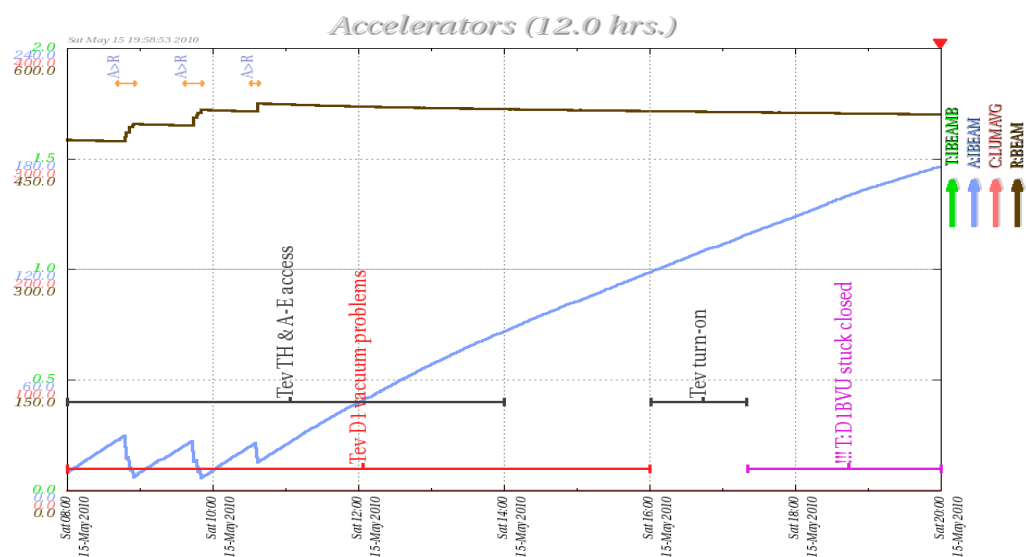
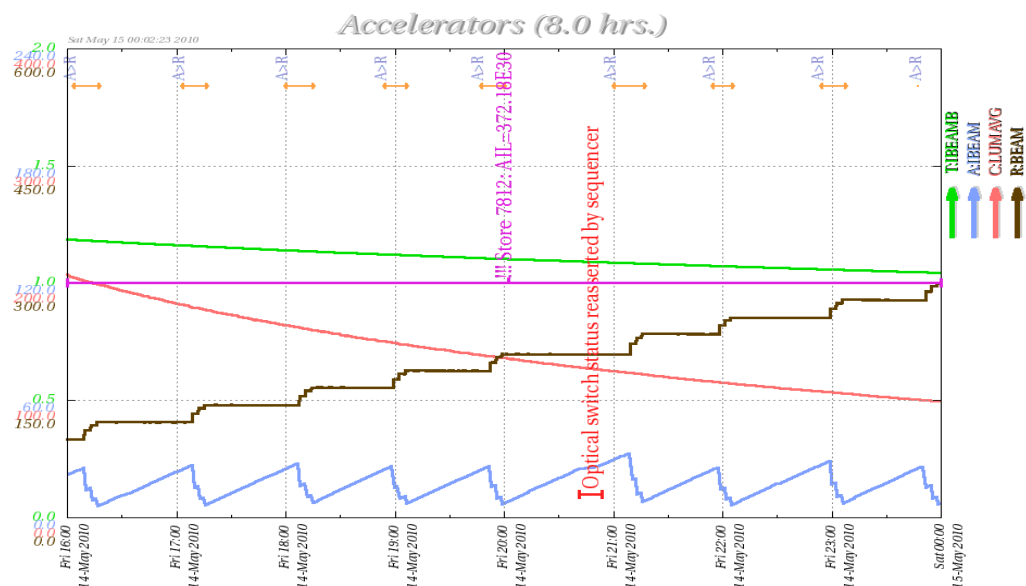
- Number of transfers : 153
- Number of transfer sets: 50
- Average Number of transfer per set: 3.06
- Time taken to shoot including reverse proton tuneup: 00.54 Hr
- Transfer efficiency: 92.65%

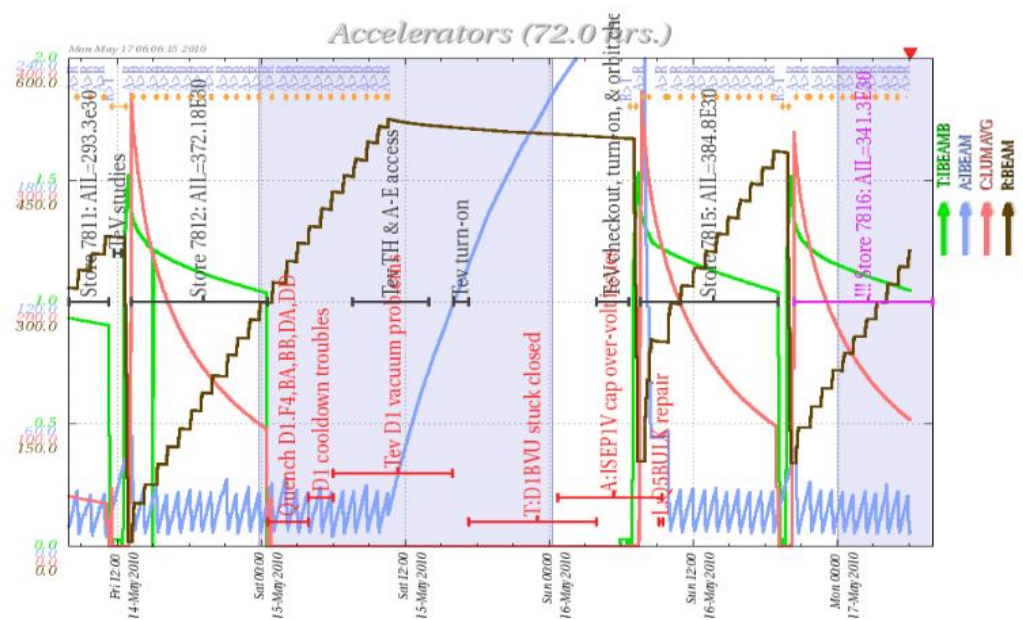
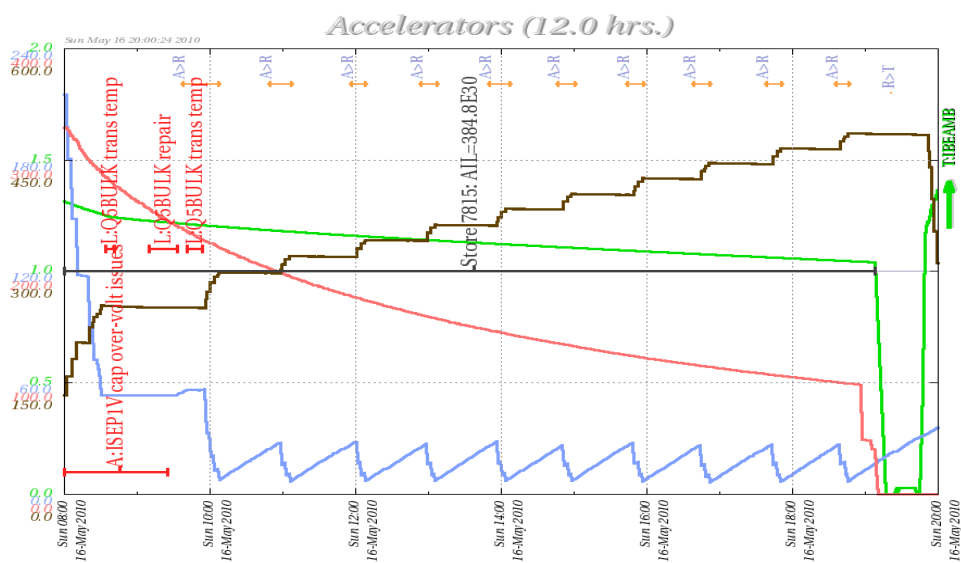
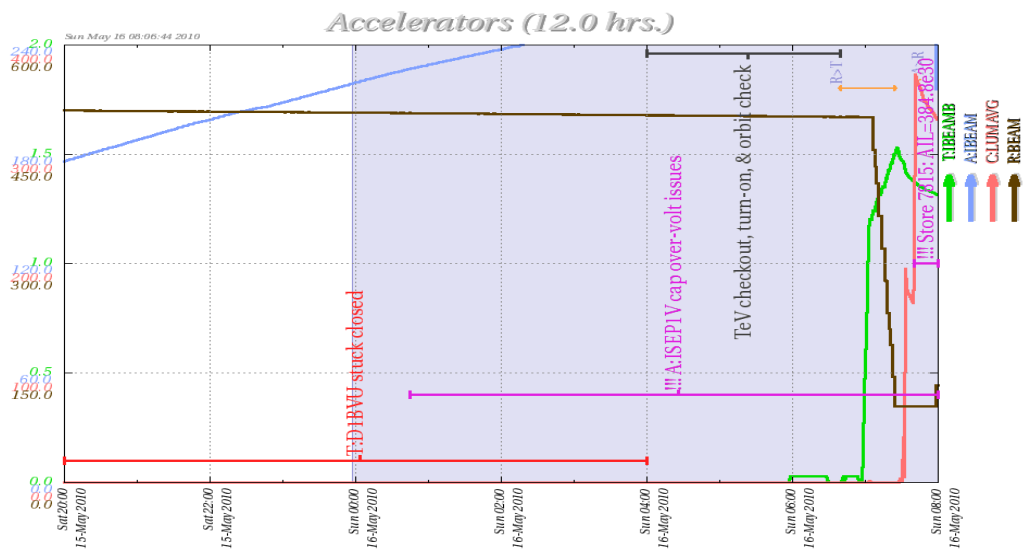
○ Other Info

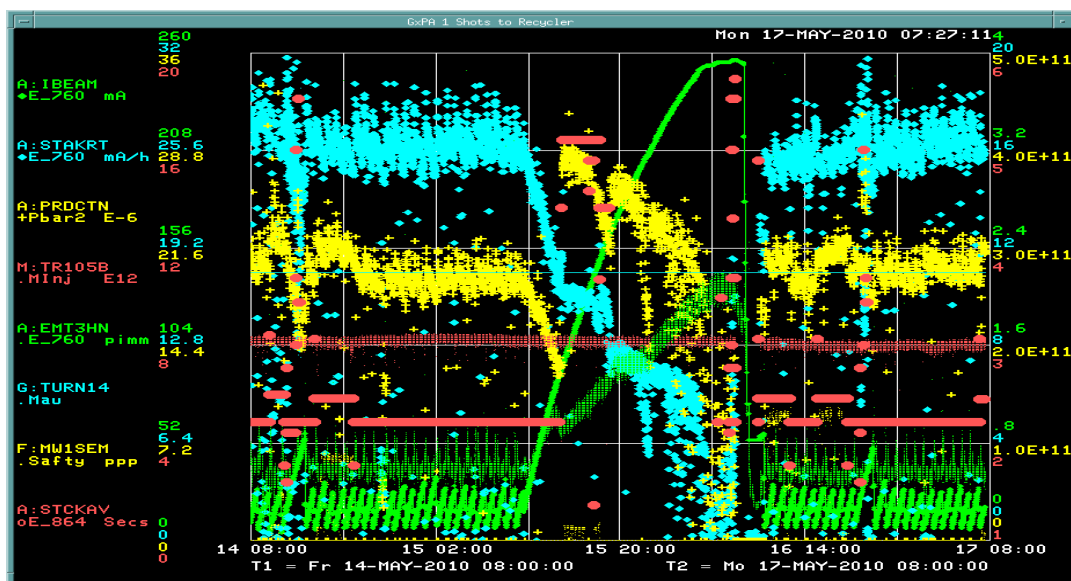
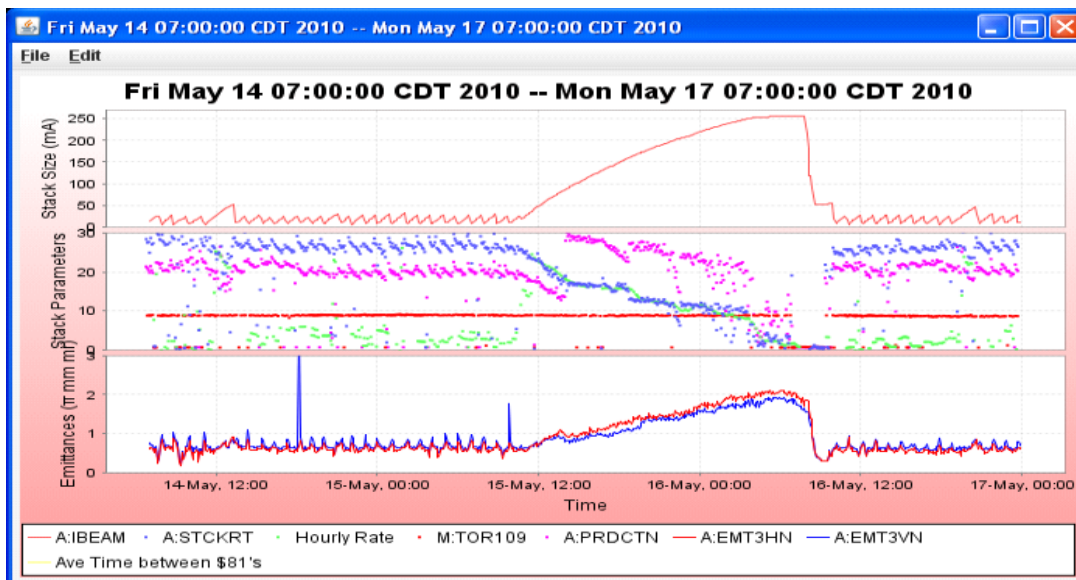
- Average POT : 8.15 E12
- Average production: 19.68 pbars/E6 protons

○

## The Plots







PB S53 DIGITAL STATUS

S53 DIGITAL STATUS

PARAM\* \*SA\* X-A/D X=TIME Y=I:VP321 I:VP521 \*Pgm\_Tools\* AGG CONTRL

\*save BL-- Eng-U I= 0 I=-4 -3 -10 -10 \*RESET

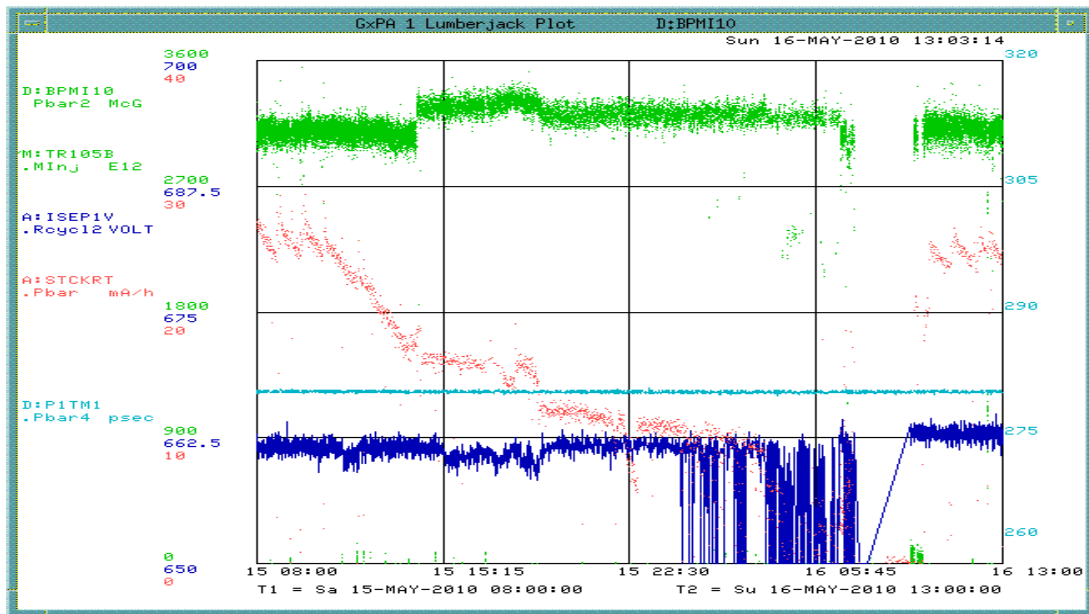
S\_MI AUTO F= 1 F= 6 7 10 10 \*ON

.global. .linac. .booster ...mi... ..tev... ..sy... .p-bar... .misc... collider \*OFF

D:H1AL1 Deb Horz Band 1 Lo Amp -See Alarm Log-

bit-15	0	bit-31	0	*On
bit-14	0	bit-30	0	*Off < *
bit-13	0	bit-29	0	
bit-12	0	bit-28	0	
bit-11	0	bit-27	0	
bit-10	0	bit-26	0	
bit-9	0	bit-25	0	Alarm is
bit-8	0	bit-24	0	ACTIVE-OK
bit-7	0	bit-23	0	Speech is
bit-6	0	bit-22	0	BYPASSED
bit-5	0	bit-21	0	EDIT
bit-4	0	bit-20	0	
bit-3	0	bit-19	0	
bit-2	0	bit-18	0	
Amp Current Monitor	Normal	1 bit-17	0	
Amp Voltage Monitor	Fault	0 bit-16	0	

Messages



B	C	D	E	F	G	H	I	J	K	N	O	P	Q	R	S	T
Column 1	Column 4 Number_3_Transfer Time		Column 21	Column 22	Unstacked (mA)	Column 23	Column 24	Stashed	Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff	Transfers	Set s	Column 5	Column 6	Column 8
Number_0_Pbar Transfer Shot #			Number_20_A:1	Number_21_A:1		Number_22_R:1	Number_23_R:1		Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff			Column 4_Acc Horizontal Emittance	Column 5_Acc Vertical Emittance	Column 7_Acc Longitudinal Emittance
			BEAMB sampled on \$91 (A:BEA M7), E10	BEAMB sampled on \$94 (A:BEA M9), E10		BEAMS (R:BEA ME0[0]) pre zfer E10	BEAM (R:BEA ME0[1]) post zfer, E10									
	Totals =>				1428.94			1327.30	92.89%	95.59%	95.46%	156	50	5.8849	6.3502	1.937

B	C	D	E	F	G	H	I	J	K	N	O	P	Q	R	S	T
Column 1 Number_0_Pbar Transfer Shot #	Column 4 Number_3_Transfer Time		Column 21 Number_20_A: BEAMB sampled on \$91 (A:BEAM7), E10	Column 22 Number_21_A: BEAMB sampled on \$94 (A:BEAM9), E10	Unstacked (mA)	Column 23 Number_22_R: BEAMS (R:BEAMEO[0]) pre zfer E10	Column 24 Number_23_R: BEAM (R:BEAMEO[1]) post zfer, E10	Stashed	Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff	Transfers	Set s	Column 5 Number_4_Acc Horizontal Emittance	Column 6 Number_5_Acc Vertical Emittance	Column 8 Number_7_Acc Longitudinal Emittance
	Totals =>				1177.08			1125.48	95.62%	97.32%	97.26%	156	48	5.7435	6.2557	1.9416

19062	Sunday, May 16, 2010	9:56	56.72	7.22	52.51	251.01	298.67	48.06	91.52%	94.22%	93.60%	4	1	5.361	5.563	1.778
19061	Sunday, May 16, 2010	7:57	254.35	53.34	199.36	104.10	254.54	153.76	77.13%	85.69%	85.32%	8	1	13.195	11.673	1.876



